

CLAIMS

1. A tire building method comprising the steps of:

providing a drum (1) having a fixed central body (16) having an outside diameter (D_1), and two half-drums (15), each having an outside diameter (D_2) located on opposite sides of the central body and movable axially to and from the central body;

providing each of the half-drums with an outer annular flange (18) containing an expandable bead clamping device (23) adjacent to the central body and a tubular body (19) located laterally outwards of the bead clamping device;

providing two annular bladders (31, 34) coaxial with each other and with each tubular body (19) and lying at rest on the tubular body and together with said tubular body having a diameter (D_2) smaller than the first diameter (D_1);

applying a central innerliner (6) on an outer surface of the central body;

applying abrasion strips (7) on the annular flange (18) and bead clamping device;

applying side wall strips (8) on the annular bladders;

applying a plurality of carcass plies (5) over the central innerliner (6), abrasion strips (7), and at least a portion of side wall strips (8); and

adjusting diameter (D_2) with respect to diameter (D_1) whereby said carcass plies (5) lie substantially flat along drum (1) when applied over the central innerliner, abrasion strips, and a portion of the sidewall strips.

2. The method defined in claim 1 wherein the second diameter (D_2) is equal to a diameter of said tubular body plus twice a total thickness of the bladders (31, 34) when at rest.
3. The method defined in claim 1 including the step of adjusting said first and second diameters (D_1) and (D_2) so that diameter (D_1) differs from diameter (D_2) by about 5cm.
4. The method defined in claim 1 including the step of providing the annular flange with an outer diameter greater than said second diameter (D_2) of tubular body (19).
5. The method defined in claim 1 including the step of placing a bead bundle (9) and bead filler (10) about each of the bead clamping devices; and expanding said bead clamping devices radially outwardly to grip said bead bundles and bead fillers.

6. In combination, a tire and a unistage drum for producing said tire; the tire (2) comprising a carcass (3) having a relatively thin central portion (11) and two thicker lateral portions (12); the drum (1) comprising a fixed central body (16) for supporting the central portion (11) of said carcass (3) and having a first outside diameter (D_1), and two half-drums (15), each for supporting a respective said thicker lateral portion (12) of said carcass (3), wherein said half-drums (15) are located on opposite sides of said central body (16) and are movable axially to and from the central body (16), each of said half-drums (15) comprises an annular flange (18) containing an outwardly expandable bead clamping device (23) adjacent to said central body (16), a tubular body (19) located outwards of said bead clamping device (23) and having a cylindrical outer surface (20); a first annular thrust bladder (31) coaxial with said tubular body (19) and lying, at rest, on and in contact with said outer surface (20); a second annular turn-up bladder (34) coaxial with said tubular body (19) and lying, at rest, outwards of and in contact with said first bladder (31); said half-drums (15) each having a second diameter (D_2) equal to a diameter of said tubular body (19) plus twice a total thickness of said bladders (31, 34) at rest, said second diameter (D_2) being smaller than said first diameter (D_1) and smaller than outer diameters of the annular flanges to compensate for differences in thickness between said central portion (11) and said lateral portions (12) whereby said carcass (3) lies substantially flat when applied over the fixed central body (11) and the second annular turn-up bladder (34).